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American Railroad Journal.

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Saturday, October 26, 1850.

Maryland.

Baltimore and Ohio Railroad.—We find in the Baltimore papers the 24th annual report of this company, from which we make the following extracts, showing the earnings, condition and progress of this great work:

The Main Stem.—It will be perceived by reference to the Treasurer's exhibit, marked B., that a larger amount of revenue has been realized during the fiscal year terminating on the 30th September last, than at any former period of the company's operations, showing the gratifying increase of $102,599 82, over the exhibit of the 30th September, 1849.

The receipts from passengers, mails and merchandise, have amounted in the aggregate, during the year, to $1,341,805 27. Of this sum $395,829 80 have been received from passengers, $905,267 99 from freight, and $42.707 48 from the transportation of the mails. The expenses of working the road and keeping it in repair, during the same period, have been $609,588 85, showing a reduction under this head of $35,045 30, a result which could hardly have been anticipated, considering the large augmentation in the company's business, as seen by the report of the General Superintendent, herewith annexed.

The proportion of expenses, will be less than 46 per cent of the gross receipts.

The net revenue of the company will be found to exceed that of any previous year, showing an aggregate of $734,216 42, equivalent to 10 49-100 per cent upon the original capital of $7,000,000, and 9 67-100 per cent upon the augmented capital of $7,588,700, as at present represented.

Of the amount thus stated as the net earnings of the road during the year, the board have declared a dividend of seven per cent, payable in the stock of the company, on and after the 26th of November next.

The Washington Branch.—The operations of the Washington Branch have been satisfactory, and will be found detailed in the Treasurer's exhibit, marked E., showing the receipts for the year ending on the 30th September to have been $321,201 46, and the expenses during the same period $113,098 35, leaving the net revenue, after deducting the State's bonus of one-fifth of the receipts from passengers and $10,607 11, the amount expended on the new station at Washington, $144,974 03, being an increase of $31,335 79 over the year ending on the 30th September, 1849.

Of this amount, the board have declared a dividend of 4 per cent payable on and after the 17th inst., which with the 3¼ per cent declared in April last, will make a total of 7¼ per cent. during the year.

Under the general head of "expenses;" will be found various heavy items for the re-construction of bridges, carried away by the flood in October, 1847.

The bonus paid to the state has amounted during the year to $52,521 97.

The expenses of maintenance and working will be found not to have exceeded 37 per cent of the gross receipts.

Extension to the Ohio River.—The report of the Chief Engineer, herewith annexed, will show in detail the progress of the company's operations west of Cumberland. No efforts have been spared to place the road under contract, and to press forward the work with the least practicable delay.—The board have to regret that a scarcity of labor has prevailed during the greater part of the year just ended, and complaints continue to be made upon the three first sections of the road, extending from Cumberland, 103 miles, to the Tygart's Valley Bridge. Should this state of things continue, the board will find it necessary to take prompt measures to prevent any delay from this cause.

The board of Engineers, appointed by the Executive of Virginia, under the act of 21st of March, have decided in favor of the Grave Creek route, as "the true and proper route under the law of 1847, and agreement with the city of Wheeling," and their decision being final, the board have directed the Chief Engineer to place the same under contract as soon as proposals can be issued and the necessary arrangements made. The board are not apprized of the ground on which this decision has been based, or to what extent, if at all, the estimates of the Chief Engineer have been called in question.

By reference to the Chief Engineer's report it will be seen, that 167 miles of the road are now in various stages of advancement, and that the commencement of laying the rails, will take place early in the ensuing spring, when the line will progress without interruption to the Ohio river.

There are now employed upon the entire line, 3,500 laborers and 700 horses, and the value of the work done, up to the 30th of September, under the various heads of graduation, masonry and bridging, was $992,112 40.

Final estimates have been handed in, upon the 3d, 6th, 7th, 8th, 10th, 31st, 35th, 42d, 52d, and 95th sections, 24 additional sections will be finished by the 1st of May next, and the line from Cumberland to the "Piedmont Station," near Westernport, say 28 miles, is expected to be opened about the 1st of June.

All the heavy sections upon Savage river and Crab Tree Creek, are progressing with commendable rapidity, and with every prospect of completion, during the coming spring and summer.

The work at the Kingwood Tunnel has advanced more rapidly than could have been anticipated. Its total length is 4,100 feet. Fifteen hundred feet of the heading have been driven through in a period of five months, being more than one-third of the entire distance. This work it is now certain will be completed, within the limit of the engineer's estimate.

The bridge masonry upon the whole line is in a state of rapid progress, and will offer no obstacle in the opening of the road.

The Chief Engineer expresses great confidence in his ability to meet the expectations of the stockholders, in the prompt completion of the work, should no unforeseen accident occur to retard its progress.

If the laying of the rails should progress without interruption, and according to the plan proposed by him, a junction will be formed with the northwestern turnpike, at the Tygart's Valley Bridge early in the Spring of 1852.

The following we extract from the report of the Chief Engineer:

COST OF THE WORK UNDER CONTRACT.

Graduation and Masonry.—The estimated value of the work at contract prices, was, for the first letting of 20 1-16 miles, $578,658, at an average of $28,789 per mile; for the second letting of 24 8-10 miles, $1,130,370, at an average cost of $45,338 per mile; for the third letting of 58 7-10 miles, $441,-

411, at an average of $7,520 per mile, and for the fourth letting of 63 miles, $740,314, at an average of $11,751 per mile. The total for the 167 miles being $2,890,753, at a general average of $17,310 per mile—the several rates of cost per mile, very well showing the relative characteristics of the parts of the route successively let. The contracts cover all the work on the sections let, which comes under the heads of graduation, masonry and bridging, except the tunnel masonry and bridge superstructures, which will form a small proportion of the whole cost, and the former of which will not probably have to be provided for until after the opening of the road.

The estimatnd cost of the work under contract was $3,633 324, so that the apparent saving thereupon would be $742.571, or 20¼ per cent upon the estimates. How much of this may in fact be realized, it will not be possible to say, until the whole road is completed. The saving will undoubtedly be considerable, as the quantities of excavation and embankment will generally fall within the estimates, and it is hoped sufficiently to compensate for advance of prices upon the abandoned works; most of the work having been let upon approximate location only, on which, by the after and more precise adjustment of the lines for construction, large reductions in the amount of material to be handled were, in many instances, effected.

WORK REMAINING TO BE PUT UNDER CONTRACT.

The line by Grave Creek having been designated for the part of the route heretofore in suspense near the western terminus, there will be 33 sections more to be now let, which, with the 167 sections previously let, will make the whole number of sections from Coumberland to Wheeling, 200, and the distance in miles the same. It only remains, therefore, to call for proposals upon this part of the line, which will be done forthwith; and the whole road will be in progress of construction as soon as the contractors are selected. The 33 miles in question present, as you are aware, a good deal of heavy work, including a tunnel of 2,450 and one of 1,250 feet in length, with many deep cuttings and fillings, and a considerable number of bridges. The sooner therefore these works are in hand the better, that the delay which must attend the construction of the road upon this route may be made as little as possible.

Pennsylvania.

Pennsylvania Central Railroad.—The opening of this road to Johnstown, 280 miles from Philadelphia, was celebrated on the 17th and 18th instant, by an excursion over the road by a large party, composed of the directors of the company, and many of the leading men of Pennsylvania; and by a sumptuous entertainment at Lewiston on the evening of the 18th. We have rceived an account of the celebration through the Philadelphia papers, but we have room for ouly a few of the speeches delivered on the occasion, and which will be found below. They will give a good idea of the spirit and feeling manifested. Pennsylvania has quietly, but in a most vigorous manner, been pushing her great work onward to the Ohio, and has already surmounted the great mountain barrier to her progress. Another season will carry her to Pittsburg, when the Ohio and Pennsylvania railroad will be in readiness to continue her line into the interior of Ohio, and by means of the Cleveland and Pittsburgh, form a continuous line of railroad from Philadelphia to Cincinnati. Success to this great line of communication through the heart of the Union.

The first speech on the oecasion was delivered by Wm. C. Patterson, Esq., President of the company.

He began by expressing his gratification at the character of the assemblage then before him. It was composed of citizens from all sections of the commonwealth come together to celebrate the advent of a new, and as all hoped and believed, a better era in the commercial history of Pennsylvania. We recognise, said he, in the presence of so many of her sons, including those who have borne an eminent part in the executive and legislative departments of the nation, or have served her in her own most important civil stations and on the battle fields of her fame—men distinguished not less for personal worth than public merit—the deep interest which Pennsylvania feels in the great work confided to our management, and find a pledge of triumphant success. While we have never, under the most inauspicious circumstances, permitted ourselves to entertain a doubt as to the attainment of that result, we now feel that it is within our grasp. With the eastern division, extending over more than half of the length of the entire route, finished and in use, and the western division, embracing more than two thirds of the residue, under contract—with 3000 men at work upon it, and with the means at hand for its completion, at the earliest practicable period—there remains to be surmounted only the great natural barrier in the way of railroad communication between the city of Philadelphia and the valley of the Mississippi, by the passage of the Alleghany mountains, without inclined planes. We pause for the present at the base of that obstacle as the American army halted before Cerro Gordo, from no uncertainty of purpose—with no doubt or fear as to the result of the onward movement when made—but with a determination so to apply the means which may be at our disposal, that the order of the day shall become the history of the battle. The movement must be made speedily, and will be made successfully. In this the past guaranties the future.—Philadelphia, whose capital has been devoted so freely to this work, and whose interests are so intimately identified with it will keep her broad shoulder to the wheel until it is driven through. Her sister counties of the interior whose vast mineral and agricultural wealth it will develope and bring into profitable use, will come to her aid, and Pennsylvania, whose ability to pay the interest upon the loan contracted in the prosecutio nof her system of internal improvement was so long, even within her own borders, a subject of dispute, will build the first great link in the Atlantic and Pacific railroad with her own capital, her own labor, and her own material. Col. P. went on to remark that it did not become him to speak of the manner in which this work had been executed; but it was due to the gentlemen with whom it was his good fortune to be associated, to say that an early completion and present profit—though both desirable ends—are not the greatest objects of their solicitude. They regard the permanent character of the work as of paramount importance to all considerations of temporary economy or convenience. They feel that they are building for all time, and they desire to render the structure upon which they are engaged suitable and worthy of the great office it is to perform.—When, continued Col. P., our country shall have fulfilled her glorious destiny, and the stars of that flag, which even now soars above all other emblems of military renown, shall have returned to the heavens they relinquished for the fellowship of its stripes, then, and not till then, will the Pennsylvania railroad have completed its appointed mission, and its iron frame will perish in common with the feebler things of earth. Until then we dedicate it to the uses of the old Commonwealth whose honored name it bears, and to the Union of whose perpetuity and strengh it is a type—as a highway for patriotism in war and of prosperity in peace. Col. P. concluded by proposing as a sentiment,

Pennsylvania, rich in everything but a knowledge of her own strength.

Loud calls were then made for Mr. Meredith, who replied in an address abounding in fervid eloquence, which we regret our inability to give in full.

Mr. Meredith said that in the first place he desired to thank his friend who had preceded him, for the sentiments he had so eloquently expressed, of love for Pennsylvania and the Union, and of admiration of the brilliant exploits of our armies in Mexico. He would shake hands with him on those sentiments and his toast. Mr. M. said he rejoiced that for once we had a meeting of Pennsylvanians, who, laying aside for the time all discordant feelings, and forgetting all differences, assembled as Pennsylvanians, to encourage the magnificent enterprise which so deeply concerned the prosperity of our commonwealth. Let us hope, said Mr. M., that similar occasions may often occur hereafter. They tend to draw our minds to the consideration of our true position. We are on the last stage of the human race. Beginning in the east, and proceeding always westward, during forty centuries man has performed his tedious pilgrimage; thro' various climates—on various soils—with various fortunes—through pain and suffering—under oppressions and cruelty—sometimes resting for a while, then urging on his predestined path—often faint and weary—now and again with glimpses of peace and happiness; and at last he has "put a girdle round the earth." From our western shores we look out across the ocean towards the oriental cradle of our race. Our circuit is closed, and here, in one country of vast extent—possessed by one people—who have the instinct of freedom and the habitude of self government—here we find concentrated for our enjoyment nearly all the products of the many climes through which our toilsome pilgrimage has been held—the cotton, sugar, rice and tobacco, fruits, breadstuffs, iron, coal, lead, copper, gold and other metals and minerals. It is almost impossible to name an article that has elsewhere contributed to the wants or the pleasure of man, that is not here, or cannot be produced here, in a profusion unexampled elsewhere: and this vast country is in the possession of one people and is so to remain. No man need talk of disunion. I believe that disunion has never been—is not—and never will be in the hearts of our people. We are too much linked together by interest, intercourse kindred and affection—by the remembrance of past glory—the sense of present blessings—the hope of future welfare—by a common origin and a brilliant destiny—to think of disunion. If we are true to ourselves—if we stand by each other—if we avail ourselves duly of our position—we shall soon have an empire more rich in commerce, manufactures and the arts—more extended—more happy—more prosperous—more powerful than has hitherto been ever dreamed of. The civilized portions of Europe, if set on the face of our territory, would there be but a blot. Such are our destinies, if we choose to fulfil them; and foul fall the man who, according to his opportunity, shall fail to exert himself to promote their fulfilment; for upon it depends the crowning glory and happiness of our race.—Let us be proud, as Pennsylvanians, that our commonwealth is forward in this work. The railroad of which we are now celebrating the opening, is the first link in a communication across our own territory from the tide waters of the Atlantic to the shores of the Pacific. A great enterprise, requiring vast efforts, and leading to vast results—we have begun it and we have a right to glory in it.

Mr. M., after adverting in terms of praise to the various roads proposed to connect with the Central railroad, gave the following sentiment:

The Ohio and Pennsylvania Railroad—the second link in the glorious chain that is to bind together the East and West in bonds of indissoluble harmony.

Solomon W. Roberts, Chief Engineer of the Ohio and Pennsylvania R.R., being called for, responded to this sentiment in one of his usual very interesting speeches. For three years, he said, he had sounded the praises of the Pennsylvania railroad, far and wide, and he was glad to see that it was at length duly appreciated. The opinion of a civil engineer might be worth having, and he could speak professionally and disinterestedly of this road. He had been among the people drumming up subscriptions to its stocks, and he knew the public sentiment to be in its favor. We must raise the money some how to build the new road over the mountain, and the sooner we go to work at it the better. The means must be provided, and we may as well make up our minds to furnish them.

He remarked that he had been the Resident Engineer on the construction of the Portage railroad nearly twenty years ago, and although now that it was to be superseded by a new road, it might be thought he should be ashamed to own it, yet he was not. It was, at the time it was built, a great achievement, and it has been of great service, but it has served its purpose, it has shown what can be done, and now a better road may properly take its

place. But that 40 miles of road by which the Portage is to be avoided, is by far the heaviest of the whole route, and all the rest may be finished before that. Some persons are astonished when told of the time it will take to complete it, but they have not looked at the work to be done.

Again he insisted upon the necssity of raising capital to finish all the sections of this great highway from Philadelphia to the far west. Mr. Roberts then compared Pennsylvania's position geographically with that of Maryland and Virginia with regard to the connection of the Atlantic cities with the great lakes, showing that Pennsylvania is the Keystone in more senses than one.—With regard to the railroad from Johnstown to Pittsburgh, he said that all except twenty miles of it will be completed next year, and those twenty miles the following spring. All this road from Philadelphia was not built merely to obtain the trade of the narrow valley of the Junianta. It was to grasp the trade of the West—the promised land. He was one of the spies returned from that promised land. Philadelphia gives tone to Eastern, and Pittsburgh to Western, Pennsylvania. He hoped that nothing would occur to interrupt the cordiality which should ever exist between those two cities. He counselled Pennsylvania to make haste with her road, and, said he, before you can get your railroad cars to Pittsburg from Philadelphia, we will have the railroad cars from Cincinnati through to Pittsburg via Cleveland. This, the Ohio and Pennsylvania railroad company, by its connection with other roads, expect to accomplish next year. A shorter connection, via Wooster and Mount Vernon, will remain to be accomplished. He said that Pennsylvania had no time to lose in the completion of her great railroad. Her rivals were at work both on the north and on the south of her, and the eyes of millions in the west are watching the progress of the contest. The people of Ohio know that the Pennsylvania route is the shortest, they have subscribed large sums to connect with it, and they look with confidence to see Pennsylvania the first state to construct a continuous first class, modern railroad, from the waters of the Atlantic to those of the Mississippi valley. Mr. Roberts said that the location and construction of the Pennsylvania railroad reflects the highest credit on John Edgar Thomson, the Chief Engineer, and the other gentlemen who have had charge of the work.

Mr. R. concluded with the following toast:

The City of Philadelphia—She has planted the seed of the Pennsylvania railroad. May she soon reap the fruit of its final completion in a glorious harvest of prosperity.

IRON ROOF AT THE LIVERPOOL TERMINUS OF THE LANCASHIRE AND YORKSHIRE RAILWAY.

This roof has been erected under the superintendence of John Hawshaw, Esq., engineer to the Lancashire and Yorkshire railway, by Messrs. Fox, Henderson & Co., engineers and ironfounders, of Birmingham. The roof covers five lines of rails and three platforms, and a carriage road 12 yards wide, in one span, having no columns or supports besidss the outside walls; the span varies from 136 feet to 128 feet, and the total length is 638 feet. The total area thus covered is 83,457 feet. The material used in the construction of this roof is entirely iron. The framing consists of a series of trussed principles, placed at intervals of eleven feet from centre to centre; these principals are attached to the outside walls by cast iron bed plates or shoes, the whole of which, upon one side of the roof, are so constructed that the principals may contract or expand freely from variations of temperature. Immediately over ths principals are fixed wrought iron purlines, which support the covering; this covering is of corrugated sheet iron, galvanized. The roof is both lighted and ventilated along the ridge by four continuous rows of large skylights, and two rows of louvres; half the light is distributed along the ridge, and the remaining half is equally distributed at the eaves; the total area of light admitted being equal to one-fourth of the entire area of the roof. Considering the immense extent of sheet iron in the covering of the roof, it was deemed advisable to make expansion-joints at various places in the corrugated iron.—This principle was also applied to the skylights, and the entire length of roof is thus divided into several portions, which can contract or expand without impairing the efficiency of the work, as being weather-proof, or destroying its unity of appearance.—*Practical Mech. Jour.*

Stirling's Patent Wrought Iron and Alloys.

In the August number of the Practical Mechanic's Journal, we drew attention to the very valuable results obtained from Mr. Morries Stirling's process for toughening and strengthening cast iron, as a branch of practical improvement in which that gentleman has been eminently successful. As a sequal to our former notice, we have now to introduce to the practical mechanic the several other equally valuable compounds of wrought iron, and alloys of the most costly metals, which have been elucidated in the course of Mr. Stirling's elaborate researches.

For the strengthening of malleable iron, an alloy is made with block or grain tin, the mixture being accomplished in the puddling furnace. The addition of so small a quantity as a two hundredth part of tin, produces a marked change in the appearance and quality of the iron; and a proportion of one hundredth produces a metal which breaks with a crystaline facture, but works well under the hammer while hot, as well as in the squeezer, the rolls and the smithy, and has a fine smooth surface.—This compound answers admirably for rolling, in combination with common iron, to form the upper surface of rails and for similar purposes, where an anti laminating quality is essential. Bismuth, antimony and arsenic, may in like manner be used, with a somewhat similar effect.

The addition to zinz, whether metallic, or as an oxide or carbonate, as calamine, has also a very powerful effect upon malleable iron, which thus becomes brighter in color, and of a clearer surface, while it retains its ductility and fibrousness. Copper added to the metal thus treated, hardens the malleable iron. A very slight proportion only is used—not more than from a two hundredth to a one hundredth of the mixed iron.

Manganese, mixed with cast iron, gives the resulting malleable iron made according to any of these processes a more steely character; the black oxide of commerce, in the proportion of one per ct. renders the pudling process more rapid, and gives increased hardness.

The process adopted in the improved manufacture is this: Common iron being brought to a thoroughly liquid state in the puddling furnace, a proportion of from 3 to 4 lbs. of calamine, to every puddling charge of 4¼ cwt., is thrown among it, and well incorporated with it. When forged, or squeezed, and drawn through the rolls, it becomes No. 1, or puddle bar, but it is in reality nearly equal in quality to No. 2 of the ordinary iron; and a second rolling brings it up to an equality with No. 3, or best bar, thus effecting an economy in the manufacture to the extent of one entire process. Instead of common iron, No. 3, or No. 3 extra, toughened pig, may be used. Wrought iron made from this is of a remarkably fibrous nature, the fibres being also much finer than when common iron is employed.

By another process, a proportion of from 2 to 4 lbs. of tin, or from 1¼ to 3 lbs. of metallic antimony, is added in the puddling furnace to each charge of 4¼ cwt. When boiled or puddled, squeezed, and rolled into No. 1, or puddle bar, the product is a very hard, crystalline, or anti laminating iron.—This is admirably adapted for the manufacture of rails and wheel tires. When adopted for this purpose, a pile is made up from three fourths to five sixths of No. 1 calamine iron, and from one fourth to one sixth No. 1 anti laminating iron, the mass being rolled to the requisite section, having the anti laminating metal on the upper surface of the rail, or on the outside of the tire. The junction of the two kinds of metal is quite perfect, as evidence in several specimens now before us. The increase in cost, for securing this vital advantage of an anti laminating quality, is only 7s. 6d. per ton.

The report of the commissioners appointed to inquire into the application of iron to railway structures, furnishes some useful data as to the ascertained strength of the iron, under various tests. The accompanied tabulated statement refers to tensile strength;

Experiments, where made.	Description of iron used.	Average breaking strain in tons per inch square.	Average stretch in a length of 2 feet.			Remarks.
			10 tons.	15 tons.	Final.	
			In.	In.	In.	
Liverpool, by Mr. Jessie Harley	Experiments made at Liverpool by Mr. J. Hartley	23·23	.....	.....	.....	
Average of numeous trials at Woolwich dockyard	S. C. Crown iron	24·47	.....	.....	.....	
Ditto	Dundyvan best bar	24·33	.....	¼	3¼	
Woolwich dock yard	1. Dundyvan No. 4 pig iron....46lbs. Wrought scrap. 10 "	27·81	.....	¼	5	Very stiff, strong iron, breaking with a long fibre, and working well under the hammer at welding and red heat, neither hot nor cold short.
	cwt.qr.lb.					
	2. Dundyvan common .4 1 0 Calamine..0 0 4	25·86	.....	¼	3¼	Similar in its qualities to the above.
	3. Nearly the same as No. 1	27·7	.....	1-12	5 3-16	Ditto.
	4.*No.2 pig iron,40lbs. Wrought scrap. 16 "	24·33	.....	9-16	5¼	This iron is intended for wire drawing, and for other uses, when a ductile soft metal is required.
	cwt.qr.lb.					
	Dundyvan....4 1 0 Tin.....0 0 1	23·39	.....	1-16	¼	For the wearing surfaces of rails, for tires of wheels and all purposes where a hard, close grained metal is required.
	Dundyvan....4 1 0 Tin.....0 0 3	22·92	.....	1-16	¼	

* Melted in the cupola and then puddled.

This detail presents the means of comparing the alloyed metal with the iron from which such alloy is made. The following table exhibits the deflections and permanent set of several qualities. the first line referring to common Dundyvan iron:

Description of iron used.	1 Cwt.	2 Cwt.	3 Cwt.	4 Cwt.	5 Cwt.	6 Cwt.	7 Cwt.	8 Cwt.	8½ Cwt.	9 Cwt.	9½ Cwt.	Permanent set.
Dundyvan ..... cwt.qrs.lbs. 0 0 3	In. ·06	In. ·1	In. ·16	In. ·2	In. ·26	In. ·3	In. ·4	In. ·82	In. 1·16	In. 1·6	In. 2·02	In. 1·6
No. 4. pig iron, 46 lbs. ... cwt.qrs lbs 0 1 0	·04	·08	·12	·18	·22	·28	·5	1·14	1·9	2·2	2·6	2·12
Wrought scrap, 10 lbs. ... 0 0 4	·08	·12	·17	·21	·25	·3	·39	·96	1·38	1·84	2·16	1·78
Dundyvan iron, 4 1 0	·08	·14	·18	·22	·26	·31	·38	·59	1·06	1·14	1·66	1·08
Calamine, 0 0 4												
Dundyvan iron, 4 1 0	·03	·12	·17	·2	·4	·7	1·8	2·6	2·72	2·94	3·5	3·1
Dundyvan Tin, 0 0 1												
Calamine, 0 0 4												
No. 2. pig iron, 40 lbs. ... cwt.qrs.lbs 0 1 0	·08	·11	·18	·22	·24	·33	·4	·56	·78	1·04	1·43	1·02
Wrought scrap, 16 lbs. ...												
Dundyvan iron, 4 1 0	·08	·11	·18	·22	·26	·33	·42	·8	1·13	1·5	1·98	1·52
Dundyvan Tin, 0 0 1												
Calamine, 0 0 4												
Dundyvan iron, 4 1 0												
Dundyvan Tin, 0 0 1												
Dundyvan iron, 4 1 0												

In alloying the zinc and iron, Mr. Stirling's plan is to place in a cupola furnace, which has been used for melting either cast or wrought iron, and from which the charge has been run off, a quantity of zinc, which, melting easily, passes through the fuel, and coming in contact with the sides of the furnace, mixes with portions of the adhering iron. In this way an alloy of zinc, with from four to seven per cent. of iron, is produced; and this alloy is adopted instead of zinc alone, in the production of such alloys as are applicable for purposes for which brass and gun metal are now used.

A very beautiful alloy, closely resembling gold, and named, from this reason, "British gold," is made by mixing this alloy of zinc and iron, with from one sixth to one fourth of an alloy of copper and manganese. The latter composition is produced by adding to melted copper a proportion varying from a two hundredth to a fiftieth part of black oxide of manganese, covering the surface of the metal with a reducing flux, in order to reduce the oxide to the metallic state, and to prevent the access of air to the metal. When these two compounds are amalgamated, in the proportion of four parts manganese and copper to one of zinc and iron a metal closely resembling standard gold is produced. A variation in the proportions of the two alloys correspondingly affects the color, hardness and tenacity of the compound. As both the manganese and zinc have a hardening effect, a smaller quantity of one or both is to be used when a rolling metal is required, but the proportions we have stated give an easily workable and finely colored metal, possessing great malleability and ductility, and capable of a fine polish. A metal of good color may be obtained by using zinc alone, instead of the alloy with iron, or by substituting copper alone, instead of its alloy with manganese.

In all these alloys a small quantity of tin gives increased hardness. For some purposes, more particularly bearings, and portions of machinery exposed to frictional wear, the presence of from one to three per cent. of lead has a tendency to prevent heating.

To produce an alloy possessing the color and many of the properties of silver, but superior to other imitations of that metal in color, brilliancy, and susceptibility of polish, the alloy of zinc and iron is mixed, in various proportions, with copper and neckel, and with copper and manganise and nickel. Ten parts of copper, two of nickel, six of zinc and iron; or eight parts of copper, two parts of nickel, and four of the zinc and iron, are good proportions for this purpose.

The behaviour of the metal intended for sheathing, bolts, and other similar purposes, when under test by Mr. Owen, of H. M. Dockyard, Woolwich, is shown by the following—

Abstract of a Statemeul made to the Lords of the Admiralty, June 4, 1848.

"The first series of experiments was made at Chatham on the patent alloys, for the purpose of ascertaining how the metal could be rolled and worked.

"It was reported—That the metal could be rolled as easily as copper into bolt staves, or sheathing, and at a heat not essentially different. Bolt staves, then rolled, were tried at Woolwich in the chain-testing machine, and broke with a strain of twenty seven tons per square inch, being higher than any other metal used for such purposes. Iron breaks with a strain of 23 tons, and copper with 21·15 tons.

"The next experiments were tried at Woolwich for ascertaining the strength of the metal as compared with the best sorts of gun metal. Its object was to determine how far it might be a substitute for gun metal in general castings, such as screw propellers, frame work, bolt and deck nails, etc.

"It was reported—That gun metal broke at 11 tons, while under precisely similar circumstances, the patent metal broke at 16 tons.

"An experiment was then made on the stiffness of the two metals, as follows: bars of equal diameter (¼ sqeare inch) were placed on supports at equal distances (2 feet 3 inches) and were then loaded with the same weight (6¼ cwt.) in the centre.

"It was reported—that the gun metal bent in the centre 5 7-16 inches, while the patent metal bent 1 2-16 inch; or, as 18 is to 87.

"Another series of experiments on the manufacture and driving of bolt nails, was made at Portsmouth, with satisfactory results to all parties. A further series of experiments on their manufacture and comparative strength was again made both at Portsmouth and Chatham, and reported satisfactorily. All these experiment proved that the saving would be as great, at the average price of copper, as was at first stated; that is, that when copper is £100 per ton, the alloy would be £80 per ton. In addition to this, a saving is made of £4 per ton, owing to its lesser specific gravity.

"I would recommend its applicatson to the following general castings: screw propellers, frame work, air pumps, cylinders, etc., bolt nails, deck nails, sheathing nails, (as recommended by Mr. Owen, the late supervisor of metals in the dockyard at Woolwich, who has tested the galvanic properties of the metal, and who has found it electro-positive to all copper, a quality which other sheathing nails do not possess); also for bolt staves, piston rods, and other uses where a metal that can be rolled like copper is required; also for sheathing, as it is much less acted upon by salt water, and other corrosive substances, than copper or gun metal, and on account of its closeness of texture, enabling the workmen to obtain a greater smoothness of surface. A corresponding increase of galvanic action is acquired, thereby decreasing fouling."

Most satisfactory evidence of the durability of the new alloy when applied for axle bearings, is afforded by Mr. Wright, of the carriage department of the London and Northwestern railway, who, up to the end of 1848, had used no fewer than 3,000 of them for carriage axles; and by a report from the Southwestern railway, dated April, 1849, we find that two bearings, in van No. 25, put to work in June, 1848, and taken out in March, 1849, ran close upon 60,000 miles, and were not worn out when removed.

Messrs. Mears of Whitechapel, the eminent bell founders, have used these alloys for nearly every possible purpose with great success, and the practical experiments in rolling, tried at the Cwm Avon copper works, show the remarkable facility with which they are worked. The great [illegible]ment in machinery bearings, which the introduction of the new metal has everywhere brought about, satisfies us that we render good service to the practical mechanic by bringing it under his notice.—*Practical Mechanic's Journal.*

Ocean Steam Navigation.

A race is even now 'coming off,' on which England has a stake of terrible magnitude. We allude to that race of an indefinite number of heats, now running on the Atlantic, by Cunard's and Collins' ocean steamers. The stake is neither more nor less than the ascendency on the seas. We use the word not in a silly and obsolete sense of those who used to dream of any one nation asserting by force of arms, a mastery in maratime affairs over all other naticns. Henceforth there can be no sovereign nation: the great community of nations is and must remain a republic. But even in republics there are individuals who possess more wealth, more power than others. England is still the first citizen of the community of nations; the flag of England is still the foremost on the ocean. If England loses the Cunard and Collins race, it will be an event of bad omen for her maritime preeminence. French pageants at Cherbourg, Russian demonstrations on the Baltic, can only alarm old women in and out of petticoats. Preeminence at sea must belong to the nation which possesses the most numerous and best appointed mercantile marine, and the most important branch of the country's mercantile marine will ere long be its ocean steamers. If it be true that an American steamer has beaten our fastest and finest vessels on an Atlantic voyage, it is high time that we had a more searching inquiry into the state of our ocean steam communication than was vouchsafed by Mr. Henley's committee.

According to the New York accounts, the American ocean steamer Pacific made her last voyage from Liverpool to New York in 10 days 4½ hours from wharf to wharf. We suspect the time was a little longer. A writer in yesterday's Times states that the Pacific left Liverpool at 2 p.m. on the 11th of September. The New York papers state that it reached that city at 5h. 45m. p. m. on the 21st ult. Add 4h. 45m. for the difference of the time occasioned by difference of longitude, and we have 10 days 8½ hours for the length of the passage.

The English ocean steamer Asia is said to have made her last homeward voyage in 10 days 7 hours. Allowance must, however, be made for the greater speed with which, owing to the set of the currents, the voyage from America to England is accomplished, than the voyage from England to America. The Asia's outward voyage to New York was accomplished in 10 days 11 hours 30 minutes, mean steaming time. From this, we are told, must be deducted 5 hours for the detour by Halifax. But this allowance is in excess; the increased distance is not the only element to be considered; the less resistance from oceanic currents on the Halifax route ought also to be taken into account.

On the whole we are disposed to admit that the Pacific, not the Asia, has made the quickest passage yet made between Liverpool and New York. It is, however, a neck and neck affair. In July last the American ocean steamer Atlantic made the voyage from New York to Liverpool in 10 days 8 hours 20 minutes, only 1 hour 20 minutes in excess of the time taken by the Asia.

We are anxious to state the facts correctly, for there is an evident and not unnatural straining on the part both of English and Americans, to make out the best case for their respective steamers.—Even on the assumption that the victory is still doubtfull, the result cannot be very gratifying to our national pride. Cunard's company have had ten years' practice; the first experiment in Atlantic steam navigation, on the part of the Americans, was made last year by the New York and Bremen steamers. The Pacific and Atlantic are the first steamers launched by the Collin's company. Yet one of these trial ships, if it has not beaten, has equalled the matured production of Cunard's company. Is there anything in the history of our ocean steam navigation that can account for this?

"We are ten years before you in ship building," said a Yanee skipper, the other day; "and ten years behind you in machinery; in five years more

we will be ahead of you in both." To prove Jonathan wrong, we shall have to get up some competition at home, and not wait to be taught the old lesson that there is no such thing in nature as an improving monopoly.

Cunard's company commenced with vessels of 1100 tons, and engines of 350 horse power. They have, step by step, reached 2300 tons and 900 horse power. But the size and power are the only things changed; the model has remained the same. The Asia of 2300 tons is an enlarged edition of the Britannia of 1100 tons, and goes bowling down the Mersey, carrying a sea before her enough to swamp a revenue cruiser.

The American steamers are of larger tonnage and less power than the Asia and Africa, but of exquisite model. They are "ten years ahead" of the Asia and Africa, as far as the hulls are concerned, and as far behind in the engines. They slip down the Mersey with scarce a ripple at the bow, dividing the water like a Gravesend steamer. In accommodation, ventilation and general arrangement, the American vessels are superior to anything that has been before seen in this country.

It will doubtless be said that we attach too much importance to the success of our trans-Atlantic cousins. We shall be told that "one swallow does not make a summer: one extraordinary passage is not a fair criterion." We shall be advised to wait for a twelve month before we give an opinion. In spite, however, of these and other wise saws that may be poured out, we confess that to us the voyages of the Atlantic and the Pacific look like "the handwriting upon the wall" to our rulers, which it behooves them to lay to heart.—*London Chronicle.*

The results which are to follow the issue of this contest are well stated. Success secures to the winning nation the first rank in the scale of influence and power, and the contest for superiority in a merchantile marine, is a contest for political supremacy as a nation.

Our first essays are admitted to equal the matured experience of England. The model of our ships are confessed to be vastly superior. If their machinery is inferior, which the result proves is not, all we want, to excel as much in the latter as the former, is experience alone. In ship building we have this experience; hence our superiority here. The construction of machinery for sea going vessels is of very recent date, and this work till within a very short time has been monopolised by our rivals. Give us an equal experience, and we shall leave the English steamers as far behind in the excellence of machinery as we do now in the construction of the ship.

Success on our part is the legitimate result of operating causes. Our mechanics are a much better educated (using that term in its most extensive sense) body of men than the same class in England. Labor with us is considered more universally respectable than in that country. Our greater freedom gives us a greater versability of character, and a more inventive genius. The labors of our engineers are seconded by a vastly more intelligent body of laborers, which is one secret of our success. The English merchant ships bear no comparison to the American, either in model, sailing qualities, management, comfort, or neatness. The masters of our packet ships are gentlemen in every sense of the word, which can be said of very few English captains.

England has been the foremost nation in the world not by virtue of numbers, but by virtue of her intellectual and moral superiority. Her contracted limits forever forbid a large population.—England is here reproduced on a vastly broader scale, with every condition of greatness, and freed from every incubus which weighs so heavily upon the old country. Our people are the same in kind, but vastly greater in degree, than the English.—We have the same materials to work with, only a vastly more of it. We are as certain in time to take the precedence, as our country is more extensive and richer in all the elements of greatness.

Internal Improvements in the State of New York.

A Sketch of the Rise, Progress and Present Condition of Internal Improvements in the State of New York.

NUMBER I.

Continued from page 644.

In their annual report in 1824, the canal commissioners announced the completion of the Champlain Canal, and 280 miles of the Erie, and that both canals, in the navigation season of 1823, produced a toll of $153,099 43. They also state that "certain citizens of Black Rock having made us a proposition to contract for the construction of a harbor at that place, in all respects conforming with the requisitions of the act of 1823, we accepted it;" that a contract had been executed with the Black Rock Harbor company, to construct a harbor for the sum of $95,819; and that 95 rods of mole, and 260 rods of embankment, had, at the date of the report, "already been completed."

The decision caused much dissatisfaction among the inhabitants of Buffalo, and a bill was brought into the Assembly "to provide for the permanent supply for the Erie Canal west of the Genesee river," which contemplated an overland canal, without entering the river at Black Rock, and thus taking the water into the canal from the level of Lake Erie at the mouth of Buffalo Creek. This bill was referred to the canal committee, of which A. C. Flagg was chairman, together with a resolution instructing the committee "to call for opinions and explanations on all the canal commissioners, as well as all the engineers, who have been at any time employed by the commissioners to make examinations or reports in relation to any of the points within the scope of the present inquiry." In pursuance of this resolution, Mr. Clinton appeared before the committee, and made a verbal statement in favor of terminating the canal at Buffalo, and Mr. Holley another in justification of the decision of the commissioners. These statements were subsequently reduced to writing, and, together with the reports of the engineers, are printed in vol. 2 New York Canals, page 518.

The Black Rock Harbor is formed by connecting Bird and Squaw Islands by a mole, or pier, 530 rods in length, 18 feet in breadth, and 16 feet in height. To this is added an embankment on Squaw Island, 260 rods long and 8 feet high. A pier, 30 rods long, connects Squaw Island with the main shore, a little below where the canal enters the basin. Through this pier is a ship lock, for the passage of lake vessels. The harbor covers an area of 136 acres; and Mr. Geddes, who planned it, at one time contemplated the construction of a mole from Bird to Grand Island, and, in this way, making a harbor of 15 miles in length.

Although it was decided to take the water for the canal from the harbor at Black Rock, it was also determined to construct an overland canal from near the upper end of the harbor to Buffalo Creek. The canal committee, in their report, say "they are well satisfied that the canal which is to connect Black Rock and Buffalo harbors, ought to be finished; and that it would be injudicious to interfere with the decision of a majority of the commissioners, or disturb the contracts made for the construction of the basin at Black Rock. These conclusions were approved by the Assembly.

When the pier was finished in October, 1825, the water rose in the basin within a few inches of the level of the lake, and flowing into the canal, gave a depth, throughout its whole extent to Lockport, of from five and a half to six feet above the bottom of the canal, as surveyed by David Thomas.—"This volume of water," say the commissioners in their report of 1826, "drawn eastward by the declivity in the canal of an inch in a mile, will be sufficient to supply the Rochester level, and probably the canal as far eastward as the Cayuga Marshes, without any aid from the Genesee river." The opinion is fully borne out by the test of experience. And when the canal is enlarged, it is confidently believed that there will be no difficulty in supplying it with water from Lake Erie as far as Seneca river, a distance of 150 miles.

The estimates of the canal commissioners, in regard to the stability of the pier at Black Rock, and its influence in raising the water to the level of the lake, have been substantially realized. A valuable water power has been created at Black Rock for mills and machinery, the use of which, in the dry seasons, counteracts, to some extent, the flow of water for the supply of the canal. Those who anticipated in 1824 that the commerce of the lakes would concentrate in the harbor of Black Rock, and enable that village to rival Buffalo, have not realized their expectations. Buffalo, on the contrary, has increased from a population of less than 5,000 in 1824, to 30,000 in 1845; and its trade has increased in a much greater proportion.

Acts were passed in 1824 for surveying the route of a canal from the St. Lawrence to Lake Champlain; for the sale of Grand Island; and for a loan of one million of dollars, "for the completion of the Erie and Champlain Canals;" for draining the Cayuga Marshes, and examining the route from Montezuma to Geneva, "with a view to the improvement of the navigation from the Erie Canal to the Seneca Lake;" also a resolution to made a canal between Fort Edward and Fort Miller, where the Hudson river was used as a part of the Champlain Canal. And another, on the motion of Mr. Dudley, of the Senate, directing the commissioners of the canal fund to prepare a digested system for the regulation and management of the canals. A joint resolution was also passed, protesting against the demand, on the part of the United States, that boats navigating the canals should take out a license, and pay tonnage duties.*

On the last day of the session of 1824, De Witt Clinton was removed from the office of canal commissioner, by a vote of 21 to 3 in the Senate, and 61 to 34 in the Assembly. General Van Rensellaer was made president of the board of commissioners.

An election for Governor took place in the following November, and Mr. Clinton was chosen by a majority of sixteen thousand. In his annual message, in 1825, Governor Clinton recommended "a board for the promotion of internal improvements, with authority to consider and report on all subjects relative to the establishment of communications by land and water; by roads, railways, canals, bridges, and water courses, and with a general superintending power over their construction." After alluding to the union of the lakes and the Atlantic by the Erie and Champlain Canals, the message said:—"The next leading object is to unite the minor lakes and the secondary rivers with the canals;" and he recommended to the favorable consideration of the Legislature, seventeen different routes for canals, and a state road through the southern tier of counties.

The important and comprehensive recommendations of the Governor were referred to a joint committee of the two houses, Mr. Dudley being chairman of the Senate committee, and John W. Hurlbut of the Assembly. This committee reported in favor of a board of commissioners, whose duties should extend to all subjects relating to internal improvements, except as to the canal revenue; and on this subject they recommended the continuance of the commissioners of the canal fund, and that they have power to appoint collectors of tolls, who shall give security to pay quarterly, or oftener, if required, the moneys collected by them.

A bill was introduced in the Senate, which became a law, authorising a survey of the several canal routes recommended by the governor, and an estimate of the cost of construction; and the sum of $12,500 was appropriated to pay expenses.—Laws were also passed authorising the construction of the Cayuga and Seneca Canal; for connecting the Erie Canal with the waters of Lake Ontario; for altering the route of the Champlain Canal between Fort Edward and Fort Miller; and authorising the canal commissioners, if they deemed it necessary, to construct an overland canal along the margin of Black Rock Harbor.

* The Delaware and Hudson Canal Company, which was incorporated in 1823, obtained authority, in 1824, to use half a million in banking in New York.

The annual report of the commissioners of the canal fund takes strong ground against the diversion of the canal revenues to any other purpose than the completion of the Erie and Champlain Canals, and the payment of the debt created in constructing these works. It alludes to the payment of $7,000 from the fund on account of the survey of other canals, as an infraction of the constitutional provision. It says:—"Sound policy concurs with the faith of the state, and the requirements of the constitution, in restraining the Legislature from increasing the debt created for opening navigable communications between the great western and northern lakes and the Atlantic Ocean, by adding to it any expenditures for other canals, and from appropriating directly, or indirectly, any part of the canal revenue towards these expenditures, until the debt created in constructing those navigable communications shall be paid. The constitution has guaranteed this fund to this sole purpose, and has thus placed it beyond the power even of the Legislature itself."

The report estimates that the revenues of the canal fund will keep the canals in repair, pay the annual interest, and redeem the principal of the debt in about ten years from the completion of the canals:—

It estimates the yearly average amoun of tolls at		$700,000
Auction duties		250,000
Salt duties		170,000
		$1,120,000
Interest	$410,000	
Expenses of repairs	100,000	
		510,000
Annual surplus applicable to debt		$610,000
The debt was stated at		$6,602,092 54

According to the estimate made in the report of 1825, the canal fund would reimburse the principal of the debt in January, 1836. The sum necessary to redeem the debt was actually provided and set apart for the purpose in July, 1836; differing only six months from the estimate made ten yeare previous.

The report of 1825 closes as follows:—"From the views taken by the commissioners, it appears reasonable to indulge the hope that within the space of ten years the canal debt may be extinguished; and this copious stream of revenue, yielding, according to the most moderate estimates, an annual income of more than a million of dollars, may be turned into the treasury, and the government be thereby enabled to remove from the people the burden of taxation; to diffuse the blessings of education in a more abundant manner than at present, and to carry forward this state with increasing progress in its career of general prosperity."

The report was written by Governor Marcy, and signed by Lieut. Governor Tallmadge, J. V. N. Yates Simeon De Witt, Samuel A. Tolcott, and A. Keyser, Jr.

Another very important report, also written by Governor Marcy, was made at the same session, and signed by the same officers, in relation to a system for the regulation and management of the canals. Preparatory to making this report, the acting canal commissioners, and the collectors of toll, were desired to give their views in regard to the proper regulations for the superintendence of the canals, the collection of tolls, the disposition of surplus waters, the rates of toll, the mode of ascertaining the weights of cargoes, preventing or detecting frauds, and any other matters in regard to the management and police of the canals. Answers were received from commissioners Bouck and Seymour, giving, in ample detail, the results of their experience on all the points referred to, and also from John B. Staats, collector at Albany, B. B. Hyde, Rome, David S. Colvin, Syracuse, R. Matson, Mentz, John Adams, Lyons, and James Seymour, Brockport.

On the 26th of October, 1825, eight years and four months from the time of its commencement, the Erie Canal was completed. Extensive arrangements had been made at New York, Albany, and through the entire line of the canal to Buffalo, to celebrate this auspicious event. It was before the present mode of communicating information with the rapidity of lightning has been made known to the world, and a telegraph was arranged for the occasion by stationing pieces of ordnance at suitable points along the whole line, so that a signal gun could be fired when the boats should move from the lake into the canal at Buffalo, to be repeated from station to station. The plan was so well executed that in one hour and thirty minutes from the firing ot the first gun at Buffalo, the echo was heard in New York; and a response was sent back thro' the same process. The canal boat Seneca Chief, with Governor Clinton, Lieut. Governor Tallmadge, and various committees on board, reached Albany on the 2d of November, and New York on the 4th. "Every city and village," says Colonel Stone in his account of the celebration, "had prepared its festival, and throughout the whole line, from the lake to the ocean, it was a voyage of triumph." When the fleet which came down the Hudson joined by the reinforcements in New York, reached Sandy Hook, Governor Clinton proceeded to perform the ceremony of commingling the waters of the lakes with the ocean, by pouring a keg of that of Lake Erie into the Atlantic; upon which he delivered the following address:—

"This solemnity, at this place, on the first arrival of vessels from Lake Erie, is intended to indicate and commemorate the navigable communication which has been accomplished between our Mediterranean seas and the Atlantic Ocean, in about eight years, to the extent of more than four hundred and twenty-five miles, by the wisdom, public spirit, and energy of the people of the State of New York; and may the God of the heavens and the earth smile most propitiously on this work, and render it subservient to the best interests of the human race."

The Great Telegraph Case.

U. S. Circuit Court—Boston.—In the case of F. O. J. Smith & al., representing Morse's patent, Judge Woodbury yesterday delivered an opinion against the injunction prayed for by the plaintiffs. His honor proceeded to construe the patent of Mr. Morse, which he did in a manner to sustain its validity viz., that the claim of the principle, or the use of the motive power of electro magnetism, must be understood as being in combination with the machinery by him invented. To give it a broader signification, his honor said would be to make void the patent of Mr. Morse. Having determined the construction of the patent his honor proceeded to consider and comment on the evidence contained in the record, and after briefly considering the numerous European telegraph, electric and galvanic, which were invented during the last century and the present one, (including Soemering's, Ronald's Schilling's, the one at Madrid, and others,) his honor proceeded to comment on the attempt of Coxe, in America, and after on the electric recording telegraph, invented by a son of Massachusetts, at Long Island in 1828, Mr. Harrison Gray Dyar, which he characterized as of remarkable ingenuity, as in the application of the idea of time in regulating the space so as to compose an alphabet, and the first American who had succeeded in this purpose of recording, although the system he used differed some from both House and Morse. The experiments of Prof. Henry, at Albany, also anterior to Morse's attempt, in which he endowed the electro magnet with power equal to raising the weight of a ton, and obviated the great difficulties which had lain in the way of using electro magnetism. These all preceded the passage on board the ship Sully, in 1832, when Mr. Morse and Dr. Jackson conversed on the subject, and when Mr. Morse commenced his labors. After following down the various inventions and labors of Steinheil, Gauss, Alexander, Weber, Cook and Wheatstone, on the telegraph, to the date of Morse's application for patent, in 1837, his honor remarked that something was wanted in all these to produce a result perfect for practical use; that, among the sixty competitors who had labored for this end, Morse appeared to have got the most practical and perfect machine. The combination of the pen point and the machinery to move paper, with the telegraph, his honor thought to be that desideratum and the essential point in Morse's invention.

His honor said that Mr. Morse and his assignees would be protected in the method of telegraphing claimed by Mr. Morse. The pen—a most happy thought; the rollers and papers, a most important thought; and the stenographic alphabet, the crowining thought; and any infringement on the things described, &c., would be punished.—Whilst Morse is thus secured, the same latitude is left open for his successors to invent, as was accorded to Morse in improving on his many predecessors.

Now has this patent been violated by the defendants? The defendants insist they have used nothing which was not open and public before the date of Morse's invention. Whilst shielding the public in this right, we must not allow any one to use the inventions of Morse without his assent. House's machine appears much unlike Morse's, and in its work differs in using two new powers. Whilst Morse's is simple, that of House is so complicated as to require days of attention by mechanics to understand. Whilst Morse's is speedy, House gives lightenining to Roman letters; his speed of breaking and closing is much greater than Morse's, and without this greater speed he could not accomplish his object. This is not the same system as Morse's and is more like that of Alexander.

Morse's machine traces the signs intended; the type or the lever at one end do so, and the pen at the other also. *House's machine does not do this.*—It acts at both ends by signals, and traces nothing. This new power of axial magnetism, the invention of which is claimed by Mr. House, aids in transferring this so as to have it printed, and the U magnet of Morse would be utterly inefficient for this purpose. House's is a signal and printing telegraph, and Morse's is a writing telegraph. The electro magnetism between the two points has been used long before Morse, and therefore no infringement of his invention. House produces in his machine new results, and cannot be considered as an equivalent for Morse's, as he uses neither the pen, the lever, nor the stenographic alphabet to translate the signs, as appears from the testimony of Prof. Henry, Dr. Jackson, Prof. Hare, Col. Burden, Hibbard, Channing, etc. His honor then commented on the originality and novelty in House's machine of the axial magnetism and the use of the air tubes and condensers, and expressed himself astounded, in examining this case, to find that so much which he had supposed to have been near an original in telegraphing, was not of late origin or derived from Mr. Morse, as electro magnetism, wires, etc., but that inventions of Morse lay in a different place from what he had formerly supposed.

Morse's leading novelties, his honor thought were—1st, the local circuits; 2d, writing at a distance by electro magnetism, 3d, the stenographic alphabet. Neither the electro magnetism, or the Roman letters, or the printing apparatus were invented by Morse. The local circuits, and the stenographic alphabet were not used by House, or the writing, &c.

The opinion of the experts who testified in the case, as to the principles of the two machines stood thus—Mr. Morse, who was not regularly educated to mechanics, and whose profession was that of a portrait painter, and, besides him, Mr. Foss, his assistant, who, until a few years past, had been employed only as a grocer and baker alone, regard this as an infringement. On the other hand, a numerous body of experts in mechanics—some twelve or fourteen—embracing some of the most talented men in the country in their professions, unite in opinion that this machine of House's is no infringement. Some of these gentlemen say the two machines are as much alike as a goose quill and a printing press.

His honor said, he thought the difference of opinion of Mr. Morse and Foss from the rest of the experts, arose from their attaching a wrong meaning to the word 'principle,' as used in patent law, and that, setting aside the battery and wires, &c., which were public long before Morse began to invent, there could be no question of it. The public had the same right to make and re-employ the old modes, the same privilege to make improvements as Morse had in 1832. His honor said, on considering the whole, I do not think the plaintiff entitled to an injunction. His honor expressed his sense of the weight due to the decision of Judge Monroe, of Kentucky, against O'Reilly, but thought it did not apply in this cause, ane said that his ex-

amination of the evidence in this cause had impelled him to take the views of the subject he had stated, and which if wrong, he felt gratified it was in the power of another and nigher tribunal to reverse. —*Post.*

Form of the Blast Furnace.

Sir—I am aware that the old form of blast furnace with flat boshes was considered to give a necessary support to the materials, and the assertion has been received as a truth, without any particular inquiry into the fact. But I think this opinion may easily be seen to be an error in *every case*, and that they never afford any greater degree of support, though a great deal of obstruction. If a perpendicular is erected from the edge of the hearth in the section of a furnace of this construction, until it meet the side wall of the lining, a triangular space will appear, forming in the filled furnace a prism of materials, the base resting on the boshes, so that as the mass tapers upwards, the smallest possible quantity of matter is supported. If another line is drawn upwards from the same point, at an angle representing the course of the rushing blast in its expansion, a second prism will be displayed, lying behind, out of the direct action of the blast, in which dust, and all the semi-liquified requisites for scaffolding, used to effect a comfortable lodgment. This line, in a properly constructed furnace, will coincide with the lining; and if the first line be erected in the section of such a furnace, sufficiently widened above the boshes, a space will appear, which, taken in connection with the wider diameter, exhibits fully three times the cubical contents, as being supported by the boshes, and bearing directly upon the centre of motion. The truth is, it was discovered to be necessary to have the furnace of considerably wider diameter than the hearth, in order to prepare the materials; that enlargement was obtained in the way most convenient to the builder, without the least reference to principle, and its defects perpetuated by imitation. In Mr. J. Gibson's pamphlet *On the Construction of the Blast Furnace*, he details the observations which led him to question the propriety of this form of structure; and having matured his views, he staked them on the construction of an entirely novel furnace, taking the action of the blast as his guide. The bold experiment proved most successful, effecting a saving of 30 to 50 per cent. in the fuel alone. His plans soon became general in Staffordshire, and are spreading throughout the kingdom, but in very numerous cases by the mere force of imitation, with as little knowledge of the origin and principles of the improvement as had previously existed regarding the meaning and demerits of the old construction. DAVID MUSHET.

Gas from Water.

This great desideratum has been found at last, though the means by which the gas is obtained from the water is more expensive than the method which Professor Payne was supposed to have discovered. The proprietors of the Astor House have been using this gas for the last two months. The light, they inform us, is much superior to that obtained from the common gas, with which the whole city is supplied, while the expense is less than one-half. The apparatus, which is set up in a small building at the rear of the hotel, is very simple in its construction, requiring only the attendance of two men, who, in seven hours, can turn off sufficient for twenty-four hours consumption. The following is, as near as we could ascertain, the process by which the gas is produced:

The water used in its manufacture is discharged from a can in limited quantities, into a pipe passing through the retort. This retort is kept constantly supplied with iron and charcoal, the intense heat from which converts the water, in its passing through the pipe, into steam. The steam thus formed is amalgamated with liquid rosin of which there is always a large supply kept in a boiler placed immediately over the retort, so that the gas is obtained simply from the combination of steam generated in the manner described, and the liquid rosin. The volatile oil produced during the manufacturing process is discharged through a separate pipe into receiving vessels. This oil is disposed of at half a dollar per barrel. The expense of the charcoal and iron consumed is very slight, and the amount of rosin required is about a barrel and a half.

The apparatus was put up by the Union Gas Light Company, which has its head quarters in Jersey City. The stock of this company has been taken up and the present capital is about $500,000. The President is Mr. George M. Danforth, and the Secretary Mr. Giddings. The whole of Jersey City, it appears, is to be lighted up with this gas, and the company has already entered into contracts for lighting several hotels in the different cities of the Union.

STATISTICS OF GAS IN ENGLAND AND WALES.

There are now in England and Wales 560 proprietary gas works, and Ireland and Scotland 170. Besides these there are thirty-three which belong to private individuals, and twelve the property of municipal bodies or parish officers; in all, 775 distinct establishments for the manufacture and sale of gas. In these works a capital of £10,500,000 is said to be invested. The quantity of gas annually produced is about 9,000,000,000 cubic feet, and the coal consumed in making it weighs 1,125,000 tons. The number of persons employed in its production is about 20,000; and probably an equal number finds employment in the preparatory work in the mines, iron works, and other processes connected with it. After allowing for waste and leakage, the quantity of gas actually sold to the public in the year is about 7,200,000,000 feet, producing a light equal to what would be given out by 32,133,640 gallons of sperm oil; which, at eight shilling a gallon, would cost the consumers £13,223,456. The gas itself is charged by the companies about $1,620,000.—*C. E. & A. Jour.*

The Coal Trade.

The following is stated to be the probable receipts of anthracite coal for the year ending Dec. 1, 1850.

Coal sent to Market to Sept. 26, 1850.

Reading Railroad.....tons.	894,389
Schuylkill Navigation Company.....	288,030
Lehigh region.....	502,245
Lackawanna region, about.....	300,000
Wyoming " "	50,000
	2,044,662

Probable amount to be sent, provided no accident occurs, before Dec. 1.

Reading railroad, 8 weeks, at 45,000 tons per week.....	360,000
Lehigh region.....	150,000
Lackawanna region.....	200,000
Wyoming region.....	40,000
	750,000
Amount in tons for 1850.....	2,794,662
Amount sent to market from same sources in 1849.....	3,200,000
Decrease in 1850, without allowing for increased consumption, which competent persons estimate at 200,000 tons.....	405,338

Ohio.

Cincinnati and Belpre Railroad.—We copy from the Scioto Gazette the following exhibit of the financial condition of this company:

Cincinnati loan, Hillsboro' section.....	$100,000
" " east of Hillsboro'.....	150,000
Highland county, individual subscription.....	60,000
Greenfield and Frankfort individual subscription.....	175,000
Ross county subscription.....	100,000
" " individual subscription.....	55,000
Athens " subscription.....	100,000
	$740,000

In addition to the above, there is a large individual subscription along the line of the Hillsboro' and Cincinnati section, nearly sufficient to pay for the grading of that section—but how much, exactly, we do not know. The gross amount, subject to the use of the work as the funds may be needed, is now hardly less than eight hundred thousand dollars.

We estimate that the following additional subscriptions may be depended upon, within the next twelvemonth, to follow the vigorous prosecution of the work of obtaining them, to wit:

Washington county subscription.....	$200,000
Vinton county "	100,000
Individual subscriptions, along the line, $50,000 in each county east and inclusive of Ross.....	150,000
	450,000
Add the above.....	$800,000
And the grand total is.....	$1,250,000

for the grading and masonry of the whole line.

We may add that the directory are determined to leave nothing undone to fulfil their own desires and reasonable expectations of the public, in the energetic prosecution of this great work.

Pennsylvania.

Schuylkill Canal.—The Philadelphia North American says: The repairs on the line of the Schuylkill Navigation are being pushed with the greatest vigor. The water has been let into the Canal between this city and Oaks Outlet Lock, 4 miles below Phœnixville, and by the 1st of November the water will be let in as far up as Reading.—The damage from Pottsville to Lord's dam, above Port Clinton, will be repaired by the 1st of December, and no doubt is entertained of the ability of the company to have the repairs completed so as to resume business at the opening of navigation in the Spring.

Hanover Branch Railroad.—The people of Hanover and vicinity are moving in the construction of a branch road, leaving the Baltimore and Susquehanna at Smyser Station, 11 miles south of the town of York, and running to Hanover, a distance of 12¼ miles. The cost of this branch is estimated at about $100,000, towards which $75,000 have already been subscribed. The balance it is proposed to raise in Baltimore. The road would run through a country affording a large business, and would become an important feeder to the Baltimore and Susquehanna.

The following gentlemen are President and Directors:—Jacob Wirt, President; Jacob Dallone, Jacob Young, Jacob Forney, Samuel Diller, Philip Color, Directors.

Massachusetts.

Lowell and Lawrence Railroad.—William Livingston, Sidney Spalding, Otis Allen, Frederick Parker, Horace Howard, Isaac Farrington and Abner W. Buttrick, were on Monday chosen directors of the above corporation. Wm. Livingston was subsequently elected President: John A. Knowles, Treasurer; and Frederick Parker, Clerk.

Maryland.

Baltimore and Ohio Railroad.—The board yesterday declared a dividend of four per cent. on the Washington branch, for the last six months, payable on the 17th instant, and on the main stem a dividend of seven per cent., payable in stock, for the last year, payable on the 26th of November next.

New York.

Ogdensburgh Railroad.—The directors of the Ogdensburgh and Lake Champlain road have decided to carry flour in the quantity destined for Atlantic seaports, at 25 cents per bbl. The lines of railway between Lake Champlain and Boston, have likewise agreed upon a through tariff from

Burlington to Boston of thirty-five or thirty-six cents per bbl., for flour. The lake transportation will be four cents to the barrel, making in all, fifty-nine or sixty cents from the St. Lawrence river to Boston.

AMERICAN RAILROAD JOURNAL.

Saturday, October 26, 1850.

Illinois.

We learn that the agent of this state has called the attention of its creditors to the importance of taking some step in relation to the recent grant of land by Congress, for the completion of the Mobile and Chicago railroad. Mr. Wadsworth suggests that the creditors of the State should take some action in the matter—either by forming a company for the building of the road, receiving the lands as a bonus, the indebtedness of the State to be receivable for the lands when sold—or to make a loan to the State for the purpose of building the road, in proportion to the bonds held, as the creditors of Indiana did to that State for the completion of the canal. The amount of indebtedness of Illinois, not including the registered Illinois and Michigan Canal bonds and arrears of interest, is about eight millions of dollars. So that a loan of twenty-five per cent by the holders of these bonds, with the proceeds of the lands as sold, it is believed will be sufficient to build the road.

European and North American Railroad.

It is stated, and upon good authority, that the British government will grant aid to the Lower British Provinces in the above project. We have no doubt that it will heartily encourage this work, which cannot fail to exert the most beneficial inbuence upon Ireland, and their provinces on this continent, in addition to what it will accomplish in shortening the line of travel between the old and new world. If the whole line of travel between Europe and America could be turned through Ireland, it would do more to improve her condition, educate her people, and consequently strengthen the bond of union between herself and England, than all other influences which can be brought to bear.—Legislation can never do much for any people. By it, a nation cannot be made wise, industrious, nor rich. Wise laws are but the expression of an intelligent people. They are a sequence, not a cause. Ireland has had a plenty of legislation, and and under its influence, her island is being fast depopulated. Her salvation must come from an improvement of the character of her own people. They must be educated. Ideas must be *introduced* among them. The constituting her a great thoroughfare of travel will necessarily bring with this improvement educated men to superintend her works. Their construction will create a demand for all her products, and lead to the developement of all her resources. New towns will grow up. The means of intercourse and travel thus furnished will render Ireland an agreeable country for a permanent residence. Every educated man will not then flee to England, with what money he can wring out of the poor tenantry, and carry with him not only all the property, but all the intelligence of the country, and leave behind him total darkness. Ireland will thus retain within herself what she is entitled to retain, her educated classes, and the earnings of her people. In addition to this, every person who will pass through this country will, to a certain extent, serve the office of school master; for every person will leave behind him an impression or remembrance of his qualities or characteristics. All who are brought in contact, will learn something from them. A railway too, is one of the greatest of educators. No man can fully understand the machinery of a locomotive, without having his intellectual range vastly enlarged.—A few lessons like this, will do more to disenthrall man from the bondage of tradition and superstition than all the theories and maxims ever written.

The advantages of this railroad to Ireland will be fully appreciated by the English government, and will, we have no doubt, be hailed as a God-send in the present crisis of the Irish affairs. What will prove true of Ireland, will, to a certain extent, be the case with the British Provinces in this country. The condition of these provinces, in consequence of the free trade policy of England, has for a few years past, as far as trade and commerce is concerned, been but little better than that of Ireland. A widespread feeling of discontent, and a desire to separate from the home government has been the consequence. Far removed from England, and shut out from the United States by a high tariff, their trade has dwindled to almost nothing, and instead of being as they are entitled by position to be, the most flourishing part of this country, they are the least so. This great work, therefore, is the only thing that can infuse life in them; and with it, they are certain to become rich, contented and flourishing. England cannot make use of any means which are so certain to heal the discontents, which so disturb her peace, and which have threatened so many times to involve her in a war. For a very small sum she can put in operation causes which shall provide for these an effectual cure.

To this country the project is important, in shortening the time, and in diminishing the expense of a voyage to Europe. It is necessary too, to give our system of railroads their full efficiency. When all our roads shall be connected, every mile of new road built is so much added to the value of each line. One system will not be complete till every part of the country shall be penetrated.

Decision of the Great Telegraph Case.

The decision of Judge Woodbury in the case of the alleged infringement of Morse's patent, is not only a matter of general congratulation, but is in harmony with plain common sense. It would be the greatest outrage ever committed upon private right, that *one* man should be allowed the monopoly of using electricity, as a means of transmitting intelligence, by whatever contrivance made use of. It would be conferring more power than any one man ever possessed. The field is now left open to honorable competition. Each man will be protected in his own invention, but no one will enjoy the exclusive right of the great agent employed, electricity. This competition, while it will constantly improve the modes by which intelligence is to be transmitted, it will bring down the cost of telegraphing to a reasonable limit.

Improvement in Railroad Property.

Never in the history of railroads in this country, has there been so general and marked an improvement in their earnings as during the present year. The increased receipts have not been confined to any section of the country, but are universal, betokening general prosperity in every department of business. The rise in railroad stocks has added a vast amount to the available property of the country, and is beginning to be felt in the increased abundance of money and the appetite it is creating for new schemes. The improvement is very favorable to new projects, as it enables them to negotiate their securities at favorable rates. On the whole, there has never been a period when the prospects of railroads were more flattering, and their rapid prospective growth more certain. Those now in operation are beginning to repay the cost of construction, and what is of still more importance, by opening a market for our productions, they afford us means which would have, but for the facilities of transportation they furnish, been entirely unavailable; means that enable us to go on with new works without pressure and embarrassement, which their first construction occasions.

Maryland.

Chesapeake and Ohio Canal.—This work, of the commencement of which, "the memory of man runneth not to the contrary," is completed, and is now being navigated for its whole extent. The event of its opening was celebrated at Cumberland on the 10th instant with appropriate ceremonies.

The Cumberland Civilian notices among the gentlemen present: Gen. James M. Coale, President, and Messrs. John Pickell, W. Cost Johnson, Wm. A. Bradley, George Schley, S. P. Smith, directors of the Canal Company; Ex-Governor Sprigg, Gen. Tench Tilgman, and J. Van Lear, Esq., State Agents; the Hon. Wm. D. Merrick, late U. S. Senator from Maryland; John S. Skinner, Esq., Editor of "The Plough, the Loom and the Anvil;" Henry Addison, Esq., Mayor of Georgetown; together with a number of gentlemen

from various parts of Maryland and Virginia.—Speeches were made, good things eaten, and the whole wound up with a grand dance. So much for the celebration.

The opening of this work is an important event for this State, from the aid its revenues will afford towards the payment of her State debt. The facilities it will afford to transportation will add largely to the export of the celebrated Cumberland Coal, and cheapen to the consumer the price of this important article. As the canal will be but little obstructed by ice at any period of the year, its opening at the present time is important to supply the deficit in the Pennsylvania coal, caused by the recent destructive freshet in that State.

Illinois.

Alton and Sangamon Railroad.—The following items of interest, in relation to this road, are extracted from a circular just issued to the stockholders of the company:—"The contractors have commenced the graduation, and masonry in the city of Alton, at Brighton, at Coup's Creek, and at Carlinville, and are now employing a force of three hundred and fifty men and sixty horses, which is increasing daily, and which will, before the end of the present month, reach to a constant force of five hundred men, and one hundred horses; besides this contracts for the cross-ties are in rapid execution, and twenty thousand are expected to be delivered at Alton early in November; and contracts for all the engines, cars, and six thousand tons of iron, and two thousand tons of spikes, necessary for the whole road, have also been entered into." The work in this city is progressing very rapidly.

Vermont.

It is stated that twenty-six miles of the Vermont and Canada railway, reaching from Essex to St. Albans, were to be open on the 18th inst. Only nineteen miles remain to be finished, which will be completed as early as the 15th of November.

Connecticut.

Passumpsic Railroad.—The extension of this road was opened Oct. 7th to McIndoe's Falls, about 8 miles above Wells river, and the work of extension northward still goes on at a rapid rate.

Indiana.

The Junction Railroad has been organized, and the Engineer, H. C. Moore, Esq., has been directed to commense an immediate survey of the route, and prepare the line for lettings from Rushville to the State-line. About one-half the amount of stock required to grade and bride the road and prepare it for the iron.

Ohio Central Railroad.

The recent decision fixing Wheeling, Virginia, as the western terminus of the Baltimore and Ohio railroad, has directed the attention of the people of that city towards the extension of the road westward; and a meeting was held there on the 17th instant, for the purpose of taking the steps preliminary to a vote of the city towards subscribing $300,000 in aid of the project. The vote will no doubt be a favorable one, and will lead to the early commencement of that portion of the Ohio Central between Zanesville and Wheeling.

New Hampshire.

It is stated that the Concord railroad has leased the Manchester and Lawrence for a term of five years. The Concord road agrees to pay the Lawrence, upon its capital, two per cent less than it divides upon its own.

New York.

Attica and Hornellsville Railroad.—The line of this road has been surveyed, and is soon to be placed under contract. This will prove the most important tributary to the Erie that has yet been proted, connecting it, as it will, with Buffalo by a very direct line. The completion of the above road will add materially to the through travel over the New York and Erie. The following it is stated will be the comparative distances from Buffalo to New York on the completion of the above line, and the straightening of the Central line:

Central route via Albany and Hudson river railroad	472 miles.
Same when shortened	449 "
Route via Hornellsville and Erie roads	410 "

NOTICE

For Proposals for Railroad Iron, for the Alabama and Tennessee River Railroad,

TO BE MANUFACTURED FROM ALABAMA ORE.

THE Alabama and Tennessee River Railroad Co. invite proposals, until the 1st of January, 1851, for Iron Rails, to be made of Alabama Iron, for the Northern Division and part of the Southern Division of their road, embracing a distance of about 105 miles. The rails are to be of the H pattern, in lengths of 18 feet, and weighing 63 lbs. per lineal yard. They are to be delivered on the Coosa river, at a landing to be hereafter designated, between Kimulgee ferry and Fort Williams, commencing their delivery on the 1st of November, 1851, and continuing it at the rate of from 80 to 100 tons per week, until the whole quantity required (10,500 tons) shall have been delivered. They are to be inspected by Lewis Troost, Chief Engineer.

It is proper to state to iron masters and capitalists at a distance, that the country traversed by the Northern and part of the Southern divisions of the road abounds in excellent iron ore and bituminous coal, and possesses every advantage for the successful manufacture of iron, health, cheap labor and provisions.

Further information may be obtained by addressing the President of the Company at Selma, Ala.

By order of the Board of Directors.

J. W. LAPSLEY, President.

STATE OF NEW YORK.

SECRETARY'S OFFICE, ALBANY, AUGUST 15, 1850.—To the Sheriff of the City and County of New York:—Sir, Notice is hereby given that at the General Election to be held in this State on the Tuesday succeeding the first Monday of November next, the following officers are to be elected, to wit:—A Governor in the place of Hamilton Fish; a Lieutenant Governor in place of George W. Patterson; a Canal Commissioner in place of Jacob Hinds; an Inspector of State Prisons in place of David D. Spencer; a Clerk of the Court of Appeals in place of Charles S. Benton; a Representative in the 32 Congress of the United States, for the 3d, 4th, 5th and 6th Districts, in place of J. Phillips Pœnix, Walter Underhill, George Briggs and James Brooks. County Officers to be elected for said county: sixteen Members of Assembly; a District Attorney in place of John McKeon. All of whose terms of office will expire on the last day of December next. And also a City Judge, in pursuance of charter 206, laws of 1850. [The electors throughout the State are also to vote for or against the repeal of the act entitled "An act establishing Free Schools throughout the State," passed March 26, 1849, and an act entitled "An act to amend the act entitled an act establishing Free Schools throughout the State, passed April 11, 1849.]

Yours respectfully

CHRISTOPHER MORGAN,
Secretary of State.

Sheriff's Office, Aug. 20, 1850.

I hereby certify that that the above is a correct copy of the notice of the General Election to be held on Tuesday succeeding the first Monday of November next, received this day from the Hon. Christopher Morgan, Secretary of State.

THOMAS CARNLEY,
Sheriff of the City and County of N. York.

N. B. All the public newspapers within this county will please publish this notice once in each week until the election, and send in their bills for advertising the same as soon as the election is over, so that they may be laid before the Board of Supervisers and passed for payment.

NOTICE.

A MEETING of the Stockholders of the Tonawanda Railroad Company, will be held at the Railroad Hotel, in the village of Attica, in the county of Wyoming, on the 18th day or November next, at 12 o'clock, at noon, for the purpose of passing upon the ratification of an agreement for the consolidation of the Tonawanda Railroad Company and the Attica and Buffalo Railroad Company, into a single corporation, made by the directors of the said two corporations, and to be submitted to said meeting. Dated October 8, 1850. F. WHITTLESEY, Sec'y.

Emerson's Patent Ventilator,

ADAPTED to Cars, Engine houses, Public Halls, Factories, Churches, School Houses, Dwellings, Chimney Flues, etc.

This Ventilator is stationary, and cannot get out of order. It is constructed in such conformity to certain ascertained laws of pneumatics, as to insure a constant draft outward, whatever may be the changing direction of the wind. The Massachusetts Mechanic Association have awarded a gold medal to the Inventor, and the Manufacturers have already disposed of over 3,000 of the article. Manufactured and sold by

CHILSON, ALLEN, WALKER & Co.,
351 Broadway, New York.

Railroad Iron.

THE Undersigned are prepared to contract for the delivery of superior make Welsh Railroad Iron of the favorite brand "Aberdare."

JOSEPH BRAMWELL & CO.,
40 91 Wall street.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 28, 1849.

R. R. Instruments for Sale.

A Theodolite & Spirit level by Troughton & Simms. Also Architectural and Engineering Works, together with Drawing Instruments, Plotting Scales, Paper, etc., may be had a bargain, the owner having no further use for them. Apply by letter or personally to R. S. B, 23 Mercer st. 1m*42

To Railroad Companies, Machinists, Car Manufacturers, etc., etc.

CHARLES T. GILBERT,

NO. 80 BROAD ST., NEW YORK,

IS prepared to contract for furnishing at manufacturer's prices—

Railroad iron,
Locomotive Engines,
Passenger and Freight Cars,
Car Wheels and Axles,
Chairs and Spikes.

Orders are invited; and all inquiries in relation to any of the above articles will receive immediate attention

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American Railway Guide,

AND POCKET COMPANION FOR THE

UNITED STATES;

CONTAINING Correct Tables, showing the time for starting of trains from all stations, distances, fares, etc., on all the Railway lines in the U. States; also many of the principal Steamboat and Stage routes—accompanied by a complete RAILWAY MAP. Price, single copies 12½ cts., or $1 per annum. Published on the first of every month, corrected from returns furnished by the Railway Superintendents throughout the Union.

This book has been compiled somewhat on the plan of Bradshaw's Guide, with such improvements in size, form and arrangement as have seemed desirable; and the publisher confidently hopes it will not be found liable to the objections of incompleteness and incorrectness, which have been made, and justly too, against various other similar works heretofore issued.

The subscriber having had the management of the NEW YORK PATHFINDER almost from its commencement, has enjoyed superior facilities in obtaining information relating to the thoroughfares of travel, and is therefore well qualified to prosecute with success the arduous undertaking of furnishing a complete and correct national guide book.

STRINGER & TOWNSEND, General Agents, 222 Broadway: and sold also by Booksellers and Periodical Dealers generally throughout the country; also on all the Railways and Steamboats.

CURRAN DINSMORE, Publisher.
N. Y. Pathfinder Office,
128 Fulton St., New York City.

Notice to Contractors.

CENTRAL OHIO RAILROAD.

SEALED PROPOSALS for the Graduation and Masonry of 36 miles of the Central Ohio Railroad, extending from the 24th section—three miles east of Newark to the City of Columbus—will be received until the 1st day of November next.

Also for the Bridging (being about 1200 lineal ft.) for the whole line from Zanesville to Columbus.

Also, for 55,000 White Oak Cross Ties, deliverable along the line from Zanesville to Newark before the first day of May, 1851.

Also, for 72,000 White Oak Cross Ties, deliverable along the line from Newark to Columbus before the 1st of August, 1851.

Contractors proposing for the construction of Bridges may propose for plans furnished by themselves, as well as those furnished by the Engineer.

The line will be ready for examination by the 10th of next month (October.)

The bids will be received at the office of the Engineer in Newark, where plans will be exhibited, and specifications furnished.

Contractors unknown to the undersigned must produce satisfactory testimonials.

The amount of work involved in this letting is well worthy the attention of enterprising contractors.

By order of the Board.

ROBERT MAC LEOD Chief Engineer.

Zanesville, Sept. 24, 1850.

P.S. A large number of laborers would find immediate employment and fair wages upon the portion of the line now under contract.

To Contractors.

ALABAMA AND TENNESSEE RIVER R. R.

SEALED Proposals will be received by the Directors of the Alabama and Tennessee River Railroad, at their office in Selma, until the 1st of November next, for the graduation, masonry and bridging of 56 miles of the Southern Division of said road, extending northwardly from Selma.

Plans and profiles may be inspected and specifications and information will be given at the office of the company in Selma, on and after the 15th of October next.

Twenty-six miles of this division were graded in 1839. This part of the division will require repairs to the road bed, and will be furnished anew with culverts and bridges.

The country embraced in this division is healthy, well watered, and possesses facilities for obtaining supplies of provisions.

Proposals may be based upon cash payments, or upon payments of a proportion, or of the whole of the work in stock.

The Directors reserve to themselves the right to accept or reject proposals as they may think proper for the interests of the company.

The Directors expect to have as much as twenty miles of the Northern Division, extending northwardly from the Coosa river in Shelby county, ready for examination by the 15th November, and for letting by the 1st December; and 30 miles more, ready for examination by the 1st and for letting by the 15th of January, 1851. It is likewise their intention to let out the grading, masonry and bridging of the remainder of the Southern Division and of the Northern Division terminating at Gadsden, with all possible despatch.

By order of the President and Directors.

LEWIS TROOST, Chief Engineer

Selma, Ala., August 30, 1850.

FOR SALE.

THREE LOCOMOTIVES, Manufactured by M. W. Baldwin, of 10 tons weight, all in complete repair, and now running on the Columbia and Philadelphia Railroad.

For particulars apply to A. L. Roumfort, Supt. of said road, either at Philadelphia, or Parkersburg, Chester county. A. L. ROUMFORT,

Supt. Motive Power Col. & Philad. R.R.

Bowling Tire Bars.

40 Best Flange Bars 5½x2 inches, 11 feet long.
40 " 5½x2 " 7 feet 8 in. long.
40 " Flat " 6x2 " 11 feet long.
40 " " 6x2 " 7 feet 8 in. long.

Now in store and for sale by

RAYMOND & FULLERTON,
45 Cliff street.

ENGINEERS.

Atkinson, T. C.,
Alexandria and Orange Railroad, Alexandria, Va.

Bancks, C. W.,
Civil Engineer, Vicksburg, Miss.

Buckland, George,
Troy and Greenbush Railroad.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W, H,,
Engineer and Surveyor, St. Louis, Mo.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Davidson, M. O.,
Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

S. W. Hill,
Mining Engineer and Surveyor, Eagle River, Lake Superior.

Hewson, M. Butt,
Memphis, Tenn.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Prichard, M. B.,
East Tennessee and Georgia R. R., Cleveland, Tenn.

Roebling, John A.,
Trenton, N. J.

W. Milnor Roberts,
Bellefontaine and Indiana Railroad, Marion, Ohio.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Sanford, C. O.,
South Side Railroad, Virginia.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Sours, Peter,
Rahway, New Jersey.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trautwine, John C.,
Panama Railroad—Address through office of Panama Railroad Co., 78 Broadway, N. Y.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Troost, Lewis,
Alabama and Tennessee Railroad, Selma, Ala.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

HOTELS.

Exchange Hotel,
Adjoining Eastern Railroad Depot,
BUFFALO, N. Y.
BY.....FISK & SPERRY,
Late of Delevan House, Albany.

J. D. Abraham, *Architect,*
NO. 300 *MAIN STREET,*
BFFFALO, N. Y.

Fountain Hotel,
LIGHT STREET, BALTIMORE,
P. THURSTON.....Proprietor.

DUNLAP'S HOTEL,
On the European Plan,
NO. 135 FULTON STREET,
Between Broadway and Nassau St.,
NEW YORK.

MANSION,
Corner of Maine and Exchange Streets,
P. DORSHIMER. *BUFFALO.*

GUY'S
United States Hotel,
(Opposite Pratt street Railroad Depot,)
BALTIMORE.
JOHN GUY. *WILLIAM GUY.*

American Hotel,
Pratt street, opposite the Railroad Depot,
BALTIMORE.
HENRY M. SMITH.....Proprietor.
Late of the Exchange & St. Charles Hotels, Pittsburg.

Washington Hotel,
BY JOHN GILMAN,
$1 *Per Day.*
No. 206 Pratt street, (near the Depot,)
BALTIMORE.

Barnum's City Hotel,
MONUMENT SQUARE, BALTIMORE.
This Extensive Establishment, erected expressly for a Hotel, with every regard to comfort and convenience, is situated in the centre and most fashionable part of the city, and but a few minutes' walk from the Railroad Depots and Steamboat Landings.
The House has lately undergone a thorough repair, embracing many valuable improvements, and will accommodate 250 Guests. BARNUM & CO.

JONES' HOTEL,
NO. 152 CHESTNUT STREET,
PHILADELPHIA.
Barnes & West, ... Proprietors.

BUSINESS CARDS.

Lithography.
JOHN P. HALL & CO.,
161 Main st., Buffalo, (Commercial Advertiser Build.)
Are prepared to execute all kinds of Lithography in good stole and at reasonable rates. Particular attention wil be paid to Engraving Railroad Maps, Engineer's Plans and drafts, etc., and orders in this line are respectfully solicited.

J. T. Hodge
Will attend to the examination of mining tracts near Lake Superior, and prepare Reports and Maps.
Address, during the Summer,
Ontanagon Postoffice, Lake Superior.

Cumberland Steam Coal,
FROM THE
FROSTBURG MINES, MD.
H. A. TUCKER,
Agent of Frostburg Coal Co.
No. 50 Wall Street, New York.

Eaton, Gilbert & Co.,
Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Charles T. Jackson, M. D.,
STATE ASSAYER, late Geologist to Maine, Rhode Island, New Hampshire, and the United States, offers his services to his friends and the public in making any Chemical, Mineralogical or Geological researches that may be required for the improvement of Agriculture and the Manufacturing Arts. Particular attention wil be paid to the exploration of mines and to assaying of ores of the metals.
State Assayer's office, 31 Somerset st.
Boston Sept. 3, 1850.

To Railroad Companies and Mechanical Establishments.
A Person of considerable experience and practical knowledge in Mechanical, Civil and Marine Engineering, is anxious to meet with an engagement with either a Private Individual or Public Company, who may have works either to design or execute in the above branches of the Engineering Profession.
Address Z. Y., 47 Atlantic st., South Brooklyn, L.I.

STEEL AND FILES.
R. S. Stenton,
20 CLIFF STREET, NEW YORK,
AGENT FOR
J. & RILEY CARR,
BAILEY-LANE WORKS, SHEFFIELD,
Manufacturers of Cast, Shear, German, Blister, and
Spring Steel,
Of all descriptions, *Warranted* Good.
FILES.
Manufacturers of Machinists' Warranted Best Cast Steel *Files*, expressly for working upon Iron and Steel, made very heavy for recutting.
☞ A full Stock of *Steel* and *Files* at all times on hand. 6m4

Walter R, Johnson,
CIVIL AND MINING ENGINEER AND Attorney for Patents. Office and Laboratory, F St., opposite the Patent office, Washington, D. C.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Manning & Lee,
GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.
Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED —'Potomac' and other good brands of Pig Iron.

Cop Waste.
CLEAN COP WASTE, suitable for cleaning Railroad, Steamboat and Stationary Engines, constantly an hand and for sale by
KENNEDY & GELSTON,
5½ Pine St., New York.
October 27, 1849, 3m

PLUSHES
FOR
Railway Cars & Omnibuses.
F. S. & S. A. MARTINE,
112 WILLIAM ST., NEAR JOHN.

ARE now receiving a large and complete assortment of Plain and Figured PLUSHES, of their own importation, which will be sold at the lowest market price, viz: Crimson, Maroon, Scarlet, Green, Blue, Purple, etc.

ALSO—CURLED HAIR, the best manufactured in market.

Samuel Kimber & Co.,
COMMISSION MERCHANTS
WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.

July, 27, 1849.

James Herron, *Civil Engineer*,
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE
HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.
—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.
NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,

Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.

May 16, 1849.

Manufacture of Patent Wire ROPE AND CABLES,
For Inclined Planes, Suspension Bridges, Standing Rigging, Mines, Cranes, Derrick, Tillers, &c., by
JOHN A. ROEBLING, Civil Engineer,
TRENTON, N. J.

Doremus & Harris,
ANALYTICAL & CONSULTING CHEMISTS,
179 BROADWAY, NEW YORK.
SCHOOL OF CHEMISTRY.

To Engineers and Surveyors.
E. BROWN AND SON Mathematical inst. makers No. 27 Fulton Slip, New York, make and keep for sale, Theodolites, Levelling inst., Levelling rods, Surveyors Compasses, and Chains, Cases of Mathematical drawing insts. various qualities, together with a general assortment of Ivory Scales and small insts. generally used by Engineers.

FORGING.
Ranstead, Dearborn & Co.,
MANUFACTURERS OF
LOCOMOTIVE CRANKS AND CAR AXLES,
ALSO
WROUGHT IRON SHAFTING,
And All Kinds of Hammered Shapes.
Office 25 Foster's Wharf, Boston.

Henry I. Ibbotson,
IMPORTER of Sheffield and Birmingham Goods. Also, Agent for the Manufacture of Telegraph Wire. 218 PEARL ST., NEW YORK.

Cumberland, (Md.,) Coals for Steaming, etc.
ORDERS RECEIVED FOR AND FILLED by J. COWLES, 27 Wall St., N. Y.

Samuel D. Willmott,
MERCHANT, AND MANUFACTURER OF
CAST STEEL WARRANTED SAWS,
—AND FILES—
IMPORTER OF THE
GENUINE WICKESRLY GRINDSTONES
NO. 8 LIBERTY STREET,
NEW YORK.

Railroad Instruments.
THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by
E. & G. W. BLUNT,
No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.

IRON.

Car Wheel Iron.
100 Tons "Columbia" No. 2 Cold Blast Charcoal Iron.
300 Tons "Salisbury" No. 1, do. do.
For sale by CHARLES T. GILBERT,
No. 80 Broad st.
New York, Sept. 21, 1850.

Railroad Spikes.
THE subscribers are prepared to make and execute contracts for Railroad Spikes of a superior quality, manufactured by the New Jersey Iron Company, at Boonton. DUDLEY B. FULLER & CO.
139 Greenwich st. corner of Cedar.

Railroad Iron.
FOR SALE—500 Tons of superior flat bar Railroad Iron, two and a half by three-fourths—which has been in use on the Cumberland Valley Railroad for about three years. For terms apply to Henry J. Biddle, Esq., Philadelphia, or to FREDK. WATTS,
President of the Cum. Val. R.R., Carlisle, Pa.
Carlisle, Sept. 17, 1850.

Railroad Iron.
1650 Tons, weighing about 61 lbs. per yard, 40 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.
New York, Aug. 26, 1850.

N.B.—B., J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the United States.

Railroad Iron.
THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.
COLLINS, VOSE & CO.,
74 South St.
New York, June 1, 1850.

Railroad Iron.
1,500 Tons weighing 58 lbs. per lineal yard.
500 " " 57 " "
500 " " 56 " "
500 " " 60 & 61 lbs, "
Also 2½x½ flat rails. All the above being of approved patterns. For sale by
DAVIS, BROOKS, & CO.,
68 Broad street.

N.B.—Rails imported on commission, or at a fixed price.

Iron.
Pig Iron, Anthracite and Charcoal; Boiler and Flue Iron, Spring and Blistered Steel, Nail Rods, Best Refined Bar Iron, Railroad Iron, Car Axles, Nails, Stove Castings, Cast Iron Pipes of all sizes, Railway Chairs of approved patterns' for sale by
COLEMAN, KELTON & CAMBELL,
109 N. Water St., Philadelphia.

Railroad Iron.
THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited. COOPER & HEWITT,
17 Burling Slip, New York.
February 15, 1850.

Glendon Refined Iron.
Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,
Manufactured at the Glendon Mills, East Boston, for sale by GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head From the excellence of the material always used in their manufacture, and their very general use for rail roads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.
JOHN F. WINSLOW, *Agent.*
Albany Iron and Nail Works, Troy, N. Y.
The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Merritt & Co., New York; E. Pratt & Brother, Baltimore, Md.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM ONE AND A QUARTER TO SEVEN INCHES IN DIAMETER.

THE ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.
THOMAS PROSSER & SON, Patentees,
28 Platt street, New York.

Railroad Iron.
THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
73 New street,
February 3, 1849. New York.

Iron Store.
THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.
MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.
August 16, 1849. 1y33

Railroad Iron.
THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany
WARREN DELANO, Jr., N.Y
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md
November 6, 1848.

Railroad Iron.
THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.
REEVES, BUCK & CO.
45 North Water St. Philadelphia,
March 15, 1849.

Tredegar Iron Works,

ROLLING MILL FOUNDRY AND MACHINE SHOPS. The undersigned continues to manufacture at his Works in this city (from best charcoal metal) Bar Iron of every description, embracing—Rounds and Squares, from 1¼ to 5 inches diameter. Flats, from ¾ to 7 inches, all thicknesses. Bands and Scrolls, all sizes. Boiler plate and Plough Iron. Railroad and Locomotive Axles and Tires. Locomotive Frames, Spikes and Plates. Hoops, Ovals, Half Ovals, Half Rounds, Angle, T, L, and indeed every description of Iron usually manufactured, all of which he warrants to be equal to any made in this country. He also manufactures at his Foundry and Machine Shops all descriptions of Railroad Work, say, Locomotives, Railroad Wheels and Axles complete and ready for the road, Railroad Chairs, etc. Also, Marine and Stationary Engines all sizes, Sugar mills and Engines, Horse mills, and every kind of Machinery usually required for the operations of the country. He has paid particular attention to getting up machinery, etc., for Gold Mine operations, and those in want of such work might find it to their advantage to give him a call. J. R. ANDERSON.

Richmond, Va., Sept. 10, 1850.

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by
ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
6m9 62 Buchanan's Wharf, Baltimore.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electerised Steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,
No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron, suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Charcoal Juniatta Billet Iron for Wire; Refined Iron for Bridging, of great strength; Cut Nails, Spikes, and Brads; Railroad Spikes and Wrought Chairs. 22tf

Stickney & Beatty,

DEALERS IN IRON AND IRON MANUFACTURERS.

AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish Ellicett's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel and Maryland (Balt.) charcoal forge pig irons, Balt. hard iron for chilling wheels, anti-Eatam nails, Catoctin foundry iron, boiler blooms from the Caledonian works, Wm. Jessop & Son's cast steel, Coleman's blister steel and nail rods, hoop, band, sheet, oval and common English iron.

Nos. 18 and 20 South Charles st., Baltimore.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

IRONDALE PIG METAL, MANUFACTURED and for sale by the Bloomsburg Railroad Iron Co.
LINDLEY FISHER, Treasurer.
75 N. Water St., Philadelphia.

Railroad Iron.

2000 Tons, weighing 58 pounds per lineal yard, of the most approved pattern of T rails, in store and to arrive, for sale by
COLLINS, VOSE & CO.,
74 South St.

New York, June 1, 1850.

Railroad Iron.

3,000 TONS C. L. MAKE 63½ lbs. per yard, now landing and to arrive.

Also contracts made for future delivery of above superior make English Iron.

300 Tons Banks Best Iron, Round, Square and Flat.
200 " English Bar " " "
10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by
DAVID W. WETMORE.

New York, March 26, 1850. 3m

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by
WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.

May 6, 1848.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND

ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.

November 23 1849.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract for the delivery of English, Welsh and Scotch Rails, of any pattern and weight, also for every description of English, Welsh, Scotch, and Swedish Iron, Railway Chairs and Spikes, Rivets, Bolts, Nuts, Washers, Chain Cables, Anchors, Tin Plates, German Spelter, Iron Castings, and every description of Machinery.

WILLIAM BIRD & CO.,
Iron and Tin Plate Merchants,
44 Wall st., New York.
And at 5 Martin's Lane, City, London,
and 140 Buchanan st., Glasgow.

July 27th, 1850.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.

Albany, August 18, 1849.

Railroad Iron.

B. O. Railway Tires, Railway Wheels,
Scotch Pig Iron, Tin Plates and Banca Tin,
Muntzs Patent Metal Sheathing,
Baltimore Copper.

Contracts for Rails made on behalf of the manufacturers, for delivery at any ports in the United States, at fixed prices.

Bowling Tires and Tire Bars and Scotch Pigs imported to order.

Muntz's Ship-sheathing, and a general stock of Tin Plates and Banca Tin in store, and for sale by
RAYMOND & FULLERTON, 45 Cliff st.

Bowling Iron. Stamped B.O.

Railway Tire Bars	Rivet Iron
Locomotive and other Axles	Locomotive Frame do
Boiler Plates	Bars.

and every other description of this superior Iron.

The subscribers, agents for the sale of Bowling Iron, are prepared to execute orders for importation, especially for railway and machinery uses, with despatch from the manufacturers.

RAYMOND & FULLERTON, 45 Cliff st.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS LOVEGROVE,
Machinist and Founder,
West Falls Avenue, below Pratt st., Baltimore.

Ray's Patent India Rubber Car Springs.

Savannah, Ga., May 22, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: I have no hesitation in saying, after having used on our road your springs and Fuller's, that I consider yours decidedly the best in every particular, and in this opinion I am sustained by all our officers. Fuller's spring has a tendency to split, and also to chafe or abrade by the constant friction on the cast iron plates or disc: and in my opinion is not near so elastic as yours.

Your springs, which have been in use on our road for 12 or 15 months past, and in constant use under both passenger and freight cars, are to all appearances as elastic, sound and good, as when first put in use.

We are now building eigty-five new cars, of which for fifty-sets the springs have been ordered of you.

GEORGE A. ADAMS,
Master Carpenter,
Central Railroad and Banking Co. of Georgia.

Connecticut River Railroad Office,
Northampton, May 4, 1850.

E. CRANE, Esq.,

Dear Sir: It is now about two years since I first tried the experiment of using a set of Ray's India-rubber Springs upon one of our merchandise cars, and although the car has been in constant service since that time, I do not on examination find the slightest difference either in the thickness or elasticity of the material.

The same result has followed wherever we have applied them, either for wheel or draw springs on Engines, Tenders or Cars. At present we use no other; either in replacing old springs or building new cars—and I am perfectly satisfied that for economy, durability, safety, and ease of motion, that Ray's India-rubber is the best article for Springs which has been presented to the public.

Yours respectfully, J. HUNT,
Supt. Connecticut River Railroad.

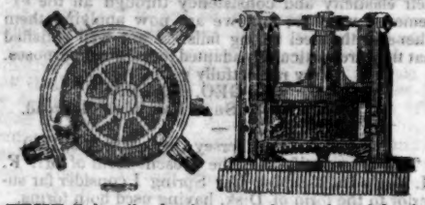
EDWARD CRANE, Esq.,

Dear Sir: Having applied to cars of the Boston and Worcester Railroad Corporation, Ray's Vulcanised Rubber Springs (where they have been in use for some two years last past), I have had occasion to observe their operation, and am free to say in answer to your inquiries, that they retain their *elasticity* perfectly during all changes of atmospheric temperature: and are in my opinion a most valuable acquisition to Railroad Cars—are not liable to derangement, as is the case with steel springs; while at the same time it costs less to apply them. Respectfully yours,

D. N. PICKERING,
Supt. Motive Power, Bost. & Wor. Railroad.
Boston, April 15th, 1850.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammersman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

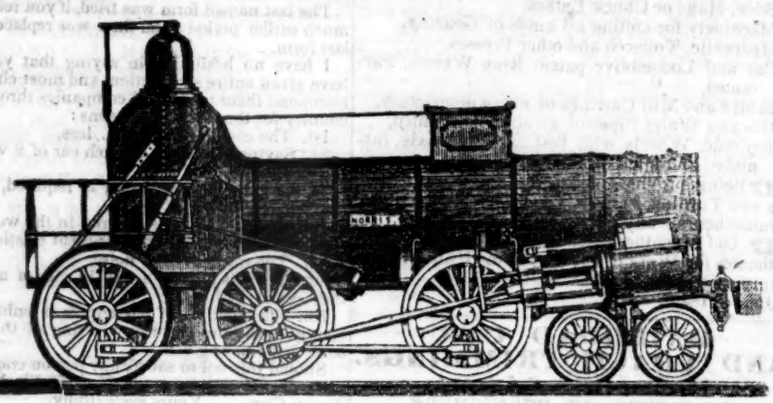
He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others. J. L. BROWN.

☞ Bank Scales made to order, and all Scales of his make Warranted in every particular.

References given if required

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,
☞ *Sole Manufacturers.* ☜
No. 85 Liberty St.
NEW YORK.

And in the principal cities and towns in the U. States.

☞ The Premium of the AMERICAN INSTITUTE was awarded to the *Etna Safety Fuse* at the late Fair held in this city.

November 3, 1849. 1y

COLUMBUS, OHIO,

Railroad Car Manufactory. RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited. 1y8

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